veillance for impending signs of circulatory failure. In all gun-shot wounds tetanus antitoxin should be administered as soon as the patient's condition warrants.

CLARENCE A. JOHNSON, M. D. (523 West Sixth Street, Los Angeles)—Doctor Lockwood has given us a most excellent paper and I see little left for discussion. However, the third topic, the question of how best to treat the lung that has been injured by a missile from some firearm, I shall attempt to discuss. This is an injury which is more likely to be encountered in civil practice, and which was frequently seen by me during the World War, as my work was in the base hospital and not at the front.

Wounds which penetrate the chest and do not kill outright give phenomena associated with entry of air into the pleura and resultant collapse of the lung with loss of blood. I know of nothing more alarming to the surgeon than a patient with a collapsed lung and hemothorax. I believe that the best treatment is the free use of an opiate, as the patient as well as the doctor is alarmed, and anything which will slow circulation and retard respiration are the results most desired.

Foreign bodies in the lung which do not produce symptoms should be, as Doctor Lockwood stated, left alone. Occasionally we found a patient in the ward with a definite foreign body in the lung which had penetrated a large vessel and also a bronchus. Through obstruction of the air passage by hemorrhage, cyanosis resulted which necessitated the removal of this foreign body in order to save the soldier.

Operation on the lung for a foreign body should be through a resection of at least two, and possibly three ribs in the region where the foreign body has been located by x-ray. A good exposure of these cases is absolutely necessary in order to avoid traumatism of the surrounding lung with resulting hemorrhage.

THE ASCENDING COLON: NON-MALIGNANT ABNORMALITIES AND CONSTRICTING BANDS*

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DISCUSSION *by Andrew Stewart Lobingier, M. D., Los Angeles; Alanson Weeks, M. D., and G. D. Delprat, M. D., San Francisco; Edmund Butler, M. D., San Francisco.*

THE ascending colon is that portion of the large intestine extending from the cecum to the liver.

The object of this paper is to attempt to show that these eight inches of intestinal tract are responsible for many of the symptoms for which other organs have been condemned.

Faulty positions and constrictions bring about pathology peculiarly reflected in other organs, while the ascending colon, the real offender, too often remains unsuspected.

Unrecognized, congenital or acquired, abnormalities in the ascending colon have frequently cast suspicion upon the operating ability of a surgeon, since the real causes of the symptoms, concerning which it was hoped the surgeon would find, were not removed.

More or less vague abdominal symptoms have been diagnosed as due to a diseased appendix or gall bladder, gastric ulcer, or other condition, and have caused operation for such. At operation, however, the organs in question may have been found more or less abnormal due to changes secondary to the real pathology in the ascending colon.

It is the plea of this paper that in non-acute conditions involving the right abdomen, deformities about the ascending colon be understood and diagnosed, if possible, before operation. These should be sought for at operation with a confidence that symptoms in other organs, due to stasis, absorption, and irritation, will frequently clear up permanently with proper operative procedures. In our experience, the correction of such mechanical defects has given most satisfactory results.

DEFORMING BANDS

We are convinced that in many cases, through x-ray study, a fairly definite preoperative diagnosis can be made of size, abnormal positions, and deforming bands, causing what we are pleased to call "water trap" colon, similar to the "water trap" stomach described by Douglas.[1]

It is this "water trap" type we wish to emphasize. In this type, bands from the ascending colon bind the transverse colon down toward the cecum, causing an acute angle at the hepatic flexure, and another in the transverse colon, where the band is attached. The resulting condition is mechanically identical to a water trap in the plumbing of any sink. As a result the ascending colon is more or less constantly distended with fluid, semisolids or gas. The symptoms are of a chronic or subacute nature. Frequently they are fairly distressing, but it is characteristic that with change of position the gut may empty and the symptoms quickly subside, only to regularly recur as the colon again distends. This distention, stasis, and absorption, lays the foundation for real pathology in the appendix; and by pressure on the ducts, the gall bladder, pancreas, or other organs, are involved. The drag of an overdistended ascending colon on the root of the superior mesenteric artery is a cause of duodenal distention and stasis.

Bands may cross the fundus of the gall bladder causing a pull upon that organ with each overdistention of the colon. Other firm short bands are not uncommon from the right abdominal wall to the ascending colon, causing pouching and constrictions, all with somewhat the same train of symptoms.

Duval[2] discusses deforming bands about the ascending colon and the results produced by their deforming influence, especially in forms of colitis.

We believe such pericolic Jackson membranes,[3] and others which are frequently present, to be of more importance to diagnose and treat in so-called chronic appendicitis than the appendix itself. In this condition the patient is often of a neurasthenic type, is undernourished and usually constipated. There are more or less constant nagging pains in the right gastro-intestinal region, with frequent flatulence and tenderness in the right iliac fossa. There is seldom an acute attack. Surgery is indicated, since it is a mechanical trouble. The bands should not reform when cut, since the broad surface of the colon makes it possible to completely cover the raw surfaces.

Bands, congenital or acquired, are occasionally

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found binding the colon to the anterior abdominal wall.

We will report a case where a congenital fibrous stalk attached at the umbilicus drew the midportion of the ascending colon toward the midabdomen at an acute angle.

DEFORMITIES CAUSED BY OTHER CONDITIONS THAN BANDS

Diverticuli occur as part of general diverticulosis of the colon. Pouches are also formed from overdistention. In several such cases of pouches we have turned these in by suturing and implication with satisfactory results.

Congenital dilatation—Hirschsprung's disease—is rarely present. In this condition the entire colon is many times larger than normal. This subject has been recently comprehensively covered by Hofmann and Ewell.[4]

An entire absence of the colon is also rare.

Deformities of the ascending colon are caused from compression by displaced organs such as displaced kidney, gall bladder, mesenteric cyst. The ascending colon is deformed as part of a generally contracted colon, in chronic spasm, with intermittent abdominal pain. This condition often is relieved by belladonna with hyoscyamus, and periods of rest in bed. There is always a tendency to relapse. Intussusception should be mentioned, but here the ascending colon acts simply as the host of an undesirable tenant.

ABNORMAL POSITIONS

The mesentery of the small intestine and the ascending and transverse colon may be attached only near the origin of the superior mesenteric artery, giving a condition known as "mesenterium commune," Piersol.[5] There is then really an absence of the ascending colon; the small gut is therefore not crossed by the colon; there is no ligament of Trietz present to help locate the first portion of the jejunum. As in partial rotation, this condition should be borne in mind in performing gastro-enterostomy, Matthews.[6]

The ascending colon may be so long as to form folds, and its mesentery is known to have been twisted. It is also not infrequently found so detached as to form part of the contents of a femoral, inguinal or other external or internal hernia. The subject of ptosis of the right colon has been fully covered by Quain.[7]

A failure to rotate or descend normally is discussed in the comments on development.

The colon may be transposed and found in the left abdomen, in identical relation to left side organs as to the right, when in normal position. This may be a part of a total or partial transposition of the viscera. In true congenital transpositions the total is more common than a partial transposition, Arneill.[8] According to Gant[9] three hundred cases have been reported. We have seen and diagnosed three patients with complete transposition of the viscera, and have operated upon two; and also show with this paper the x-ray findings of complete transposition of all viscera of chest and abdomen in a patient who was recently operated for abscessed appendix.

Both rotation and migration may be aberrant and result in malformations. The appendix, for instance, is often caught in the descent of the cecum and held up back of the ascending colon in a retroposition. Many bands and deformities, thought to be acquired, are due to developmental errors. Such malformations can be shown to run in families. A well-known law of heredity affirms that acquired malformations are never, but that congenital forms are inherited, Lynch.[10] When congenital deformities, such as harelip, cleft palate, hernia, are found, it is well known that other defects are likely to be found, and this should be borne in mind in considering abdominal symptoms.

Before reviewing our cases we will mention the normal gross anatomy and relations of the ascending colon.

ANATOMY OF THE ASCENDING COLON

The ascending colon extends a distance of about eight inches from the cecum to the undersurface of the right lobe of the liver. It is covered laterally and anteriorly by the peritoneum. Posteriorly, areolar tissue, together with the peritoneum reflected from the lateral surfaces, bind the organ to the quadratus lumborum and psoas muscles and to a portion of the anterior surface of the right kidney. The ileum and anterior abdominal wall lie anterior to the organ. A slight constriction, even with the upper border of the ileum as it enters the cecum, marks the beginning of the cecum. The undersurface of the liver is decidedly notched where the hepatic flexure, the transverse colon, begins.

EMBRYOLOGY

In considering the normal position of the ascending colon we are compelled to consider also the development of the part, since it is impossible to understand certain positions, without a knowledge of the normal and more unusual processes of rotation and descent of this organ.

About the third week of embryonic life the intestinal tract begins to appear as an entity between the stomach and caudal end. Rapid changes take place and a U-shaped loop of intestine forms. The vitalline duct attaches itself to this loop and the umbilicus. This duct persists wholly or in part in 3 per cent of all children born, and is the origin of Meckel's diverticulum. Normally to the right of this attachment the cecum forms a pouching, the beginning of the formation of the large intestine. About the sixth or eighth week the large intestine consists only of a transverse and descending colon and rectum. About the third month the cecum rotates over the right kidney into the second, or canine position, and there is little further descent until after birth. With the later descent the ascending colon rotates to the right and attaches itself fairly close to the posterior abdominal wall with an obliteration of peritoneum posteriorly. Sometimes the obliteration of the peritoneal covering posteriorly does not take place and the ascending colon then is attached by a mesocolon of greater or less length, Piersol.[11]

CASE REPORTS

CASE 1—*Transposition of All Viscera*—Mrs. O., age 70, mother of two normal children, was first seen November 17, 1926, with all the symptoms and signs of

an acute abscess in her left lower abdomen. The history indicated that over a period of three years short, severe, recurrent attacks of pain occurred in the same region. A physical examination indicated a transposition of the heart, stomach, and liver. An x-ray examination of the colon indicated the position of that organ transposed. On November 17, under local anesthesia, a left rectus incision was made and an appendiceal abscess was drained. The recovery from this condition was uneventful and a complete gastrointestinal study was obtained and the plates are now presented.

CASE 2—This case is reviewed to show the position of the cecum in some humans soon after birth. In a small percentage of cases this position persists, due to failure to descend and rotate.

A Japanese baby, age 2 months, was first seen with an acute abdomen of a few hours' duration, and the blood picture of an acute infection. The chest was clear and it was decided to operate for an acute appendix. A small right rectus incision was made. The cecum and ascending colon were not found in the right abdomen and were only located by gentle traction upon the omentum. This brought into view the transverse colon and the cecum from behind the stomach to the left of the midline of the body. The appendix was found to be acute and was easily removed.

CASE 3—Mary F., single, age 30, no previous operations, no serious illness, family history of no special interest. She presented herself stating she had been in generally good health, but had more or less constant dragging pains in her upper right abdomen, with frequent distention. This would pass and give relief, to recur constantly at longer or shorter intervals. There had been no jaundice or indication of deranged gall bladder function. A study of the case with x-ray findings led us to diagnose adhesions about the ascending colon. The operation, March 19, 1924, revealed a rather firm band attached to the ascending colon, crossing the fundus of the gall bladder and attached to the transverse colon in such a manner as to cause a pull upon the gall bladder with each distention of the colon. These bands were easily removed and raw surfaces covered. The appendix was normal but removed. Following an uneventful recovery, the patient has been free from all symptoms. This case is typical of four others in which operation showed practically the same findings.

CASE 4—Mrs. F., age 51, had never been operated. For a period of about two years her chief symptom was pain about the right costal margin. This would be relieved with the subsidence of flatulence. The pain never occurred at night and she slept well. She would be free from symptoms for weeks at a time and then again have pain every day for as long as two months at a time. She never vomited, was never jaundiced. The gaseous distention at times was extreme. The symptoms could be relieved by personal manipulation of the abdomen and change of position. The character of food ingested did not alter the symptoms. The bowels were regular and no mucus or blood was found in the stools. There had never been a distinct attack of appendicitis.

An x-ray study led to a diagnosis of a "water trap" condition of the ascending colon, the picture showing the characteristic position and the meal remaining abnormally long in the ascending colon.

At operation, May 24, 1926, it was found that a band from the ascending colon held the transverse colon down along the ascending colon for about five inches. The ascending colon was dilated and the acute angles described in this condition were present. The appendix was involved and was removed. The gall bladder was moderately thickened, contained calculi and was removed. We think the changes in these organs were influenced by the chronic stasis in the ascending colon. The subsequent relief and general well-being of this patient has been most satisfactory and has been the real incentive for the preparation of this paper.

CASE 5—Slides of x-ray in this case illustrate how an overdistended ascending colon, by its drag upon the root of the superior mesenteric artery, causes an obstruction of the third portion of the duodenum causing its overdistention with stasis.

CASE 6—This case illustrates how bands produce a "water trap" condition in many of the patients where bands are found about the ascending colon. It also illustrates the results of neglect in these cases.

Mr. E., age 55, never seriously ill, gave a history of more or less distress in his right abdomen for twenty years; no acute attacks, no operations, but symptoms such as those described above in the consideration of bands. We saw him first in 1922 and, after a complete x-ray study, advised operation for adhesions about the ascending colon and gall bladder. He did not come for operation until August 3, 1926. During the four-year interval his symptoms grew worse and he lost forty pounds in weight. At intervals he showed moderate jaundice. At operation the findings revealed bands across the ascending colon to the transverse colon, holding that portion of the colon close down along the ascending colon in a typical "water trap" position. The gall bladder was covered by these bands and the cecum was cramped under the bands; the appendix was completely retrocecal with secondary changes. The gall bladder was filled with many small stones. We believe the changes in the gall bladder and appendix and the evidence of moderate myocarditis were largely the results of long stasis in the ascending colon. The general resistance was lowered and, while the surgical recovery progressed satisfactorily, the patient developed pneumonia and died on the eighth postoperative day.

CASE 7—*Congenital Stalk*—Dr. V., age 50, had never been operated. Right abdominal distress with train of symptoms previously described existing for many years. Was operated on October 6, 1926. A congenital stalk held the midportion of the ascending colon over in a kink toward the umbilicus. The appendix was removed and the pathologist's report stated: "Subacute mucosal appendicitis, lymphoid hyperplasia and moderate degree of infiltration."

CASE 8—*Postoperative Bands*—Mrs. P., age 35, operated ten years before for acute appendicitis and cystic right ovary. Since that time she had suffered with severe cramping in her right abdomen at frequent but irregular intervals. Distention of the abdomen and early vomiting ushered in these attacks. Relief was usually obtained from an active cathartic, or at times the gas would rumble through and there was instant relief. Her general health continued good. The x-ray study indicated adhesions about the ascending colon and she was operated November 2, 1926. Four distinct groups of bands were found:

1. The transverse colon was bound to the ascending colon in a "water trap" position;
2. Twelve inches of the terminal ileum were involved;
3. The sigmoid was bound to the fundus of the uterus in an acute kink; and
4. The gall bladder was normal, but held by a firm band to the second portion of the duodenum.

The patient has been entirely free from symptoms since her operation.

CASE 9—*A Long Mesocolon*—This case was typical of a series of cases we have had where amebic colitis had not yielded to treatment because of mechanical obstructions.

Mrs. F., age 42, never seriously ill. She had been treated for amebic colitis for many months; and the coccyx had recently been removed for pain in that region. Her abdominal symptoms were distressing, variable and indefinite. The chief symptom was a gurgling in the left pelvis. An x-ray study indicated a displaced ascending colon. There was an indefinite tenderness in the left pelvis, and a soft mass could be palpated. Was operated on October 22, 1926. The ascending colon was found attached by a mesocolon long enough to permit the cecum and appendix to be bound down to the rectum in the left pelvis The appendix was removed, the pathologist's report stating: "Chronic appendicitis with lymphatic overgrowth." A

colopexy was performed on the ascending colon and the uterus held up by a Gilliam operation. The patient has done well, is practically free from her former symptoms, and the colitis is clearing up.

CONCLUSIONS

When operating in a non-acute abdomen a routine inspection of the ascending colon for abnormalities, faulty positions, and constricting bands, should be made.

These abnormalities lead to symptoms and changes in neighboring organs, obscuring the original and chief cause of the trouble.

Deforming conditions of the ascending colon, when left untreated, lead to unsatisfactory results and reflect upon the surgery performed.

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DISCUSSION

ANDREW STEWART LOBINGIER, M. D. (716 Merritt Building, Los Angeles)—In most of the acquired adhesions the primary focus of infection is the vermiform appendix. Either through the lymph channels or the portal circulation bacteria lodge in the subserous reticular zone at the hepatic flexure, setting up a slow subacute inflammatory change. This is characterized by round cell infiltration and connective tissue proliferation, resulting in adhesions and deformity of the colon channel. These kinked and angled conditions are accentuated by omental adhesions which may extend to the border of the right lobe of the liver, to the gall bladder, or the duodenum. We may not only have interference with the colonic current and the discharge of bile, but obstruction at the pylorus, with mucous colitis and symptoms of pylorospasm.

We wrote on this subject fifteen years ago, reporting six cases of obstructive adhesions at the splenic flexure as well as a number at the hepatic flexure. These were among the first cases of *membrana pericolica sinistra* which had been noted. For obvious reasons they are much less common than the adhesions at the hepatic flexure.

Doctor Collins very properly calls attention to the common oversight in not including a wider area of inspection when the appendix is operated on. In a large number of cases the appendix has been the original source of the resulting pathology, but its removal can only be an incident in correcting the symptom complex which arises from the distortion of the ascending and transverse colon. Moreover the internist should realize how fruitless it is to attempt to treat cases of mucous colitis or an inactive colon without first having these adhesions freed surgically.

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ALANSON WEEKS, M. D., AND G. D. DELPRAT, M. D. (384 Post Street, San Francisco)—Doctor Collins remarks on the fact that pathology in the form of constricting bands or adhesions about parts of the alimentary canal is frequently overlooked, and secondary pathological foci are attacked by the surgeon, while the primary condition is not recognized. There is only one answer: adequate and thorough exploration. We have long advocated the long right rectus, or pararectus incision instead of a small incision, such as the McBurney. It is to be deplored that surgeons still pride themselves on "doing an appendectomy" through a one and one-half inch incision. Such small scars on the abdomen spell incomplete and inadequate exploration.

Of the symptoms caused by anomalous bands in the abdomen, whether of the upper abdomen or elsewhere, there can be no doubt. We have seen too many cases relieved by the section of such adhesions, and have this week presented a paper illustrating several types of such cases.

As Doctor Collins has stated, anomalous bands of the intestine cause stasis and putrefaction. When it is recalled, as Dr. B. W. Williams of London has shown, that the colon harbors anaërobic bacteria as part of the natural flora and that the growth of these organisms, with the liberation of their toxins, is particularly accelerated with obstructions of the bowel, whether partial or total, one can readily understand and interpret the misery of these patients

The cooperation of a competent roentgenologist is of great value in preoperative diagnosis of these conditions. He must be trained, however, to look carefully for areas of constriction and deformities and interpret them correctly. Too frequently in the past has some such report as "some lack of mobility of the cecum" been accepted at its face value instead of stimulating inquiry into the cause of the restricted motion of that structure.

Especially should we remember that surgeons who were the most ardent supporters of Lane's removal of the large bowel have all gradually stopped the radical procedure because they have been reasonably well satisfied with the results they obtain by searching for and removing causes of poolings in this structure.

Do not expect too rapid results from the relief of bands. It may take some months before this type of chronic invalid arrives at the stage of complete recovery. Remember also that the chronically inflamed bowel with its abnormal bacteria should receive the proper attention of a medical man who will carefully watch and change the diets as required.

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EDMUND BUTLER, M. D. (490 Post Street, San Francisco)—Doctor Collins early in his paper made the statement: "The object of this paper is to attempt to show that the ascending colon is responsible for many of the symptoms for which other organs have been condemned."

It is my opinion that most of the symptoms producing adhesions and deformities of the colon are due to inflammatory processes in the gall bladder, liver, appendix, mesenteric lymph glands, or are congenital. If secondary to extrinsic inflammatory processes, then the primary exciting factors must be properly taken care of, as well as the releasing of adhesions. This fact is well emphasized by Doctor Collins' case reports, in most of which sufficient pathological findings were recorded to account for the symptoms without ascribing undue importance to the ascending colon.

The ascending colon should not be suspected until a careful check has been made upon the other structures that may cause right abdominal signs and symptoms.

The radiologic evidence of disturbed peristalsis of the ascending colon is difficult to elicit, for unless the interpretation is made by a thoroughly trained clinician who specializes in radiographic diagnosis the opinion is valueless.

Arthritis is undoubtedly influenced by abnormalities of the ascending colon, but these conditions do not improve following operation alone. A carefully planned dietetic and eliminative therapy extending over the remainder of the patient's life also must be carried out.

Doctor Collins is to be commended for so vividly arousing our interest in the large bowel, particularly

the ascending colon. No exploratory laparotomy should be completed without a careful search for abnormal conditions affecting this portion of the intestinal tract.

THE COMMONER TYPES OF GOITER—CLINICAL AND PATHOLOGICAL CLASSIFICATION*

WITH NOTES ON PREVENTION AND TREATMENT

By D. SCHUYLER PULFORD, M. D.
Woodland

INTRODUCTION

THE recognition of a goiter-bearing patient is not always easy, nor is the classification of that goiter always so simple. Clinicians and surgeons as a whole often fail to distinguish exophthalmic goiter from adenomatous goiter with hyperthyroidism (toxic adenoma) and the relationship of the adenomatous goiter with hyperthyroidism to the adenomatous goiter without hyperthyroidism is not sufficiently emphasized even today in the non-goitrous districts. The proper treatment of thyroid disease depends upon the recognition of the type of goiter in question. Failure to recognize that there are several kinds of goiter has resulted in much harm and an occasional unnecessary death.

While it should be emphasized that the recognition and classification of goiters must, in the last analysis, be from clinical signs and symptoms backed up by careful basal metabolic rate tests; nevertheless there is a definite gross and microscopic pathological picture which varies with the different types of thyroid disease. The different histopathologic picture may be the tissue explanation of the different chemistry of toxic adenomata and exophthalmic cases as shown by the different response to Lugol's solution.

The object of this paper is to call attention to a simple, workable, clinical classification of diseases of the thyroid gland correlating the pathology of the removed glands with the different clinical types insofar as that is possible, and to set down a few short notes on diagnosis, prevention, and treatment of the commoner types of goiter.

HISTORY

Mobius [1] in 1887 suggested that the clinical symptoms of Basedow's disease were due to an abnormally increased activity of the thyroid gland. Greenfield [2] in 1893 was the first to demonstrate this relationship by showing hypertrophy and hyperplasia in the thyroid gland of six typical cases of what is now called exophthalmic goiter. In 1910 Kocher [3] practically differentiated true Graves' disease and adenomatous goiter with hyperthyroidism when he collected and described a large group of patients showing different reactions to iodin administration. He failed, however, to separate the groups clinically. It is interesting to note that Aschoff,[4] independently of Kocher and Plummer, also made a distinction between these diseases from the pathologic study of excised goiters. Since 1911 Plummer [5] has repeatedly emphasized and maintained that there were two separate and distinct types of hyperthyroidism, each associated with a distinctive pathologic change in the thyroid gland. In 1913 Doctor Wilson [6] reported that in exophthalmic goiter cases as described and diagnosed by Plummer, the thyroid always showed histologically parenchymatous hypertrophy and hyperplasia. Plummer's clinical observations were corroborated by Kendall's [7] chemical studies on thyroxin. Dubois [8] in 1916 published extensive observations on the basal metabolism rate in goiter patients, and Boothby [9] showed the indirect gasometer method of calorimity in estimating metabolism, a practical help in the diagnosis and treatment of thyroid diseases.

The two most important and recent advances in the handling of thyroid disease have been the use of iodin in the treatment of exophthalmic goiter, revived and rationalized by Plummer's convincing separation of exophthalmic goiter and toxic adenoma groups, and the use of x-ray in goiter treatment.

CLASSIFICATION (WITH SYNONYMS)

Goiters may be conveniently divided as follows (modified from Plummer):

1. Diffuse colloid goiter (simple-adolescent-colloid hypertrophy).
2. Adenomatous goiter, without hyperthyroidism (non-toxic adenoma).
3. Adenomatous goiter, with hyperthyroidism (toxic adenoma).
4. Exophthalmic goiter (Graves' or Basedow's disease), (hypertrophic parenchymatous thyroid).
5. Mixed type of hyperthyroidism (a combination of toxic adenomata and exophthalmic goiter).
6. Myxedema.
7. Cretinism.
8. Thyroiditis.
9. Malignant disease.

By far the most common types encountered are the first five of these diseases. We shall confine our remarks to them. It should be emphasized at the onset that the most important point in the clinical classification of goiter revolves about Plummer's well-established differentiation between true exophthalmic goiter and the toxic adenomatous goiter.

DIAGNOSIS

Goiter diagnosis is one of the most, if not the most, difficult diagnostic problem which confronts the internist and surgeon today, especially in the non-goitrous districts. It is really only a very careful study of disease for years that enables one properly to diagnose and treat these cases. So it is that without that experience a properly controlled and operated basal metabolism rate station is the most valuable single factor in recognition and management of these diseases.

A. *Simple Colloid or Adolescent Goiter*—This type of goiter is most commonly seen in young people between the ages of 12 and 25. The thyroid enlargement is uniform, smooth thyroid-shaped and without palpable nodules. These goiters do not show signs of toxicity, the basal

* Read before the Annual Meeting of the Nevada State Medical Association, September 23, 1927.